

### Abstract of the Invention

Heparinase enzymes can be used as a medical treatment to reduce localized  
5 inflammatory responses. Treatment of activated endothelium with heparinase  
inhibits leukocyte rolling, adhesion and extravasation. Most of the heparin and  
heparan sulfate on endothelial cell surfaces and in basement membranes is  
degraded by exposure to heparinase. In addition, immobilized chemokines, which  
10 are attached to heparin/heparan sulfate on activated endothelium are solubilized  
by heparinase digestion. Heparinase can be infused into the vascular system to  
inhibit accumulation of leukocytes in inflamed tissue and decrease damage  
resulting from localized inflammations. Targeting of heparinase to activated  
endothelium can be accomplished through localized administration and/or use of  
15 genetically engineered heparinase containing endothelium ligand-binding  
domains.

20

25

30

35